C-4

Annual Report of Operations for Year 2019

To comply with NPDES General Permit No. WAG130000 for Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country within the Boundaries of the State of Washington

NPDES # for your Facility:
WAG 130008

Facility & Owner Information

Facility Name:	WINTHROP NATIONAL FISH HATCHERY
Operator Name (Permittee):	UNITED STATES FISH & WILDLIFE SERVICE
Address:	PHYSICAL - 453A TWIN LAKES RD, WINTHROP WA 98862 MAILING - PO BOX 429, WINTHROP, WA 98862
Email: sara_reese@fws.gov; chris_pasley@fws.gov	Phone: 509.996.2424
Owner Name (if different from operator):	
Email:	Phone:

RECEIVED
JAN 10 2020
EPA - REGION 10
Enforcement & Compliance Assurance Division

Best Management Practices (BMP) Plan

Has the BMP Plan been reviewed this year? ☒ Yes ☐ No

Does the BMP Plan fulfill the requirements of the General Permit? ☒ Yes ☐ No

Summarize any changes to the BMP Plan since the last annual report. Attach additional pages if necessary.

~~No changes~~

Added INAD use of Aqui S 20E and LHRH

ICIS 2/19/2020 JA

Operations and Production

Total harvestable weight produced in the past calendar year in pounds (lbs):	78,093
Pounds of food fed to fish during the maximum month:	11,831

List the species grown or held at your facility and the annual production of each in gross harvestable weight. If fish were released rather than harvested, list the weight at time of release.

Species	Fish Produced	Receiving Water(s) to which Fish were Released	Month Released/ Spawned
Spring Chinook	23,301	Methow River	April
Summer Steelhead	39,215	Methow & Twisp Rivers Leader Lake	April & May
Coho	15,577	Methow River	May

Fill in the table below with production numbers from the past year. List the **maximum** amount of fish on-site and the maximum amount of food fed **per month**.

Month	Total Fish (lbs)	Fish Feed (lbs)	Month	Total Fish (lbs)	Fish Feed (lbs)
January	56,075	2,780	July	22,041	7,133
February	57,363	3,206	August	34,600	10,562
March	67,665	9,684	September	46,391	8,215
April	79,081	11,831	October	46,577	4,854
May	8,242	2,034	November	51,916	3,638
June	14,285	5,161	December	54,028	2,135

Additional Comments:
Releases that occurred in May for summer steelhead & coho salmon were volitional releases (fish may leave over a several week period), so there is no way to quantify how many of these are present at one time. Maximum fish present in May represents fish not part of the volitional release.

Solid Waste Disposal

Describe the solid waste disposed of during the calendar year (including fish mortalities).

Type of Solid Disposed	Date Disposed	Location Disposed
Daily fish mortalities	Daily	Buried in station mort pit
Spawned adult carcasses	Weekly in April, May, August, October & November	Buried in station mort pit
Dead fish eggs	June, October, & December	Buried in station mort pit
Additional Comments:		

Fish Mortalities

Include a description and the dates of mass mortalities in the past year (more than 5% per week). Attach additional pages, if necessary. Include total mortalities from all causes.

Date	Cause of Deaths	Steps Taken to Correct Problem	Pounds of Fish
None			
Additional Comments:			

Noncompliance Summary

Include a description and the dates of noncompliance events (including spills), the reasons for the incidents, and the steps taken to correct the problems. Attach additional pages, if necessary.

There were no noncompliance events in 2019.

Inspections & Repairs for Production & Wastewater Treatment Systems

Date Inspected	Date Repaired	Description of System Inspected and/or Repaired	
None			

Aquaculture Drugs and Chemicals

Please indicate whether you used each drug/chemical **during the past calendar year.**
Describe the use of each drug/chemical in more detail on the following pages.

Used in the past year?	Drug or Chemical
☐ Yes ☒ No	Azithromycin
☐ Yes ☒ No	Chloramine-T: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Chlorine
☐ Yes ☒ No	Draxxin
☐ Yes ☒ No	Erythromycin - injectable
☐ Yes ☒ No	Erythromycin - medicated feed
☐ Yes ☒ No	Florfenicol (Aquaflor)
☒ Yes ☐ No	Formalin - 37% formaldehyde: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Herbicide - describe:
☒ Yes ☐ No	Hormone - describe: LHRH
☐ Yes ☒ No	Hydrogen Peroxide: ***See additional reporting requirements on page 7***
☒ Yes ☐ No	Iodine: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Oxytetracycline
☐ Yes ☒ No	Potassium Permanganate: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Romet
☐ Yes ☒ No	SLICE (emamectin benzoate)
☒ Yes ☐ No	Sodium Chloride - salt
☐ Yes ☒ No	Vibrio vaccine
☒ Yes ☐ No	Other: AQUI-S 20E (10% Eugenol)

☒ Yes ☐ No	Other: AQUADES	

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: AQUI-S 20E		Generic Name: AQUI-S 20E (10% Eugenol)	
Reason for use: Safe and effective handling of adult summer steelhead			
☐ Preventative/Prophylactic ☒ As-needed	Total quantity of formulated product per treatment (specify units): 1400 mg	Total quantity of formulated product used in past year (specify units): 50,400 mg	
Date(s) of treatment: 02/26 – 03/01; 03/04 - 03/05; 03/07 - 03/08; 03/11; 03/13 - 03/14; 03/18 - 03/20; 03/25 - 03/29; 03/31 - 04/07; 04/09 - 04/13; 04/16; 04/18 - 04/19; 04/21			Total number of treatments in past year: 36
Maximum daily volume of treated water: 150 L (2 coolers)	Treatment concentration (specify units): 20 ppm	Duration and frequency of treatment(s): Treated as needed length varied by # of fish handled	
Method of application:	☒ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☒ Other (describe): Large cooler
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: AQUADES		Generic Name: Peracetic acid	
Reason for use: Disinfection of adult holding ponds			
☐ Preventative/Prophylactic ☒ As-needed	Total quantity of formulated product per treatment: 55 gallons	Total quantity of formulated product used in past year (specify units): 55 gallons	
Date(s) of treatment: 05/29			Total number of treatments in past year: 1
Maximum daily volume of treated water: 18,000 gallons	Treatment concentration (specify units): 32 ppm	Duration and frequency of treatment(s): 1 time per year 24 hrs	
Method of application:	☒ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☒ Ponds Adult holding ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☒ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:

length of static bath allowed peracetic acid to break down. Test strips verified that product had degraded.

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Ovadine		Generic Name: Buffered PVP Iodine	
Reason for use: Disinfection of fertilized fish eggs			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 56 mL per treatment in treatment	Total quantity of formulated product used in past year (specify units): 8.2 gallons	
Date(s) of treatment: 4/10, 4/17, 4/24, 5/1, 5/8, 5/15, 5/22, 8/14, 8/21, 8/28, 9/3, 10/23, 10/30, 11/6, 11/13, 11/14			Total number of treatments in past year: 16
Maximum daily volume of treated water: 312 gallons	Treatment concentration (specify units): 75 ppm	Duration and frequency of treatment(s): 25 mins. per treatment 1 treatment per spawn event	
Method of application:	☒ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☒ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use: # of trays per spawn event varied from 5 to 156. Total quantity per treatment varied from 280 mL to 8,736 mL, based on # of trays.			

Brand Name: American Stockman Mixing Salt		Generic Name: Salt	
Reason for use: Alleviate stress due to steelhs			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 50 lbs	Total quantity of formulated product used in past year (specify units): 500 lbs	
Date(s) of treatment: 02/26, 03/01, 03/04			Total number of treatments in past year: 2 treatments each in 5 raceways
Maximum daily volume of treated water: 360,000 gallons	Treatment concentration (specify units): 83.2 ppm	Duration and frequency of treatment(s): 8 hrs, 2 times per raceway	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: American Stockman Mixing Salt		Generic Name: salt	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 100 lbs.	Total quantity of formulated product used in past year (specify units): 200 lbs.	
Date(s) of treatment: 04/04, 04/07			Total number of treatments in past year: 2
Maximum daily volume of treated water: 144,000 gallons	Treatment concentration (specify units): 83.2 ppm	Duration and frequency of treatment(s): 8 hrs 2 ~~total~~ treatments	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: American Stockman Mixing salt		Generic Name: salt	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 50 lbs.	Total quantity of formulated product used in past year (specify units): 250 lbs.	
Date(s) of treatment: 04/17, 04/18			Total number of treatments in past year: 2 treatments each in 1 raceway ~~1 treatments each~~ in 3 raceways
Maximum daily volume of treated water: 432,000 gallons	Treatment concentration (specify units): 41.6 ppm	Duration and frequency of treatment(s): 8 hrs 2-3 treatments per raceway	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: American Stockman Mixing Salt		Generic Name: Salt	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 100 lbs	Total quantity of formulated product used in past year (specify units): 300 lbs	
Date(s) of treatment: 06/29, 06/30, 07/01			Total number of treatments in past year: 3
Maximum daily volume of treated water: 1498 cu ft	Treatment concentration (specify units): 1069 ppm	Duration and frequency of treatment(s): 0.5 hr 3 treatments in 1 raceway	
Method of application:	☒ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: American Stockman Mixing Salt		Generic Name: Salt	
Reason for use: Alleviate stress associated with coldwater disease			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 80 lbs	Total quantity of formulated product used in past year (specify units): 320 lbs	
Date(s) of treatment: 07/18, 07/19, 07/22, 07/23			Total number of treatments in past year: 4
Maximum daily volume of treated water: 42,000 gallons	Treatment concentration (specify units): 228.3 ppm	Duration and frequency of treatment(s): 2 hrs 4 treatments in 1 raceway	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: American Stockman Mixing Salt		Generic Name: Salt	
Reason for use: Costia			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 0.25 lbs	Total quantity of formulated product used in past year (specify units): 4.5 lbs	
Date(s) of treatment: 10/10, 10/11, 10/12			Total number of treatments in past year: 18
Maximum daily volume of treated water: 57,600 gallons	Treatment concentration (specify units): 3.1 ppm	Duration and frequency of treatment(s): 8 hrs 3 treatments each in 6 tanks	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☒ Other (describe): Nursery building
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: Luteinizing hormone releasing hormone		Generic Name: LHRH	
Reason for use: Speed up timeline to ripeness of adult steelhead females			
☐ Preventative/Prophylactic ☒ As-needed	Total quantity of formulated product per treatment: 0.5 mg	Total quantity of formulated product used in past year (specify units): 1 mg	
Date(s) of treatment: 05/06, 05/13			Total number of treatments in past year: 2
Maximum daily volume of treated water: 216,000 gallons	Treatment concentration (specify units): 0.0000006 ppm	Duration and frequency of treatment(s): 15 fish injected per treatment	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☒ Other (describe): Injection into fish	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☒ Ponds ☐ Off-line settling basin	☐ Other (describe): Adult holding
Where did water treated with this chemical go? (check all that apply):	☒ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Parasite-S		Generic Name: Formalin (37%. Formaldehyde)	
Reason for use: Inhibit fungal growth on adult broodstock			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 3.6 gallons	Total quantity of formulated product used in past year (specify units): 280.8 gallons	
Date(s) of treatment: 03/13/19 → 05/20/19, 06/19/19 → 08/30/19, 10/08/19 → 11/11/19			Total number of treatments in past year: 78
Maximum daily volume of treated water: 18,000 gallons	Treatment concentration (specify units): 193 ppm	Duration and frequency of treatment(s): 1 hour, 3 days per week	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☒ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: Parasite-S		Generic Name: Formalin (37%. Formaldehyde	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 0.23 gallons per raceway	Total quantity of formulated product used in past year (specify units): 2.76 gallons	
Date(s) of treatment: 04/11, 04/13, 04/15			Total number of treatments in past year: 3
Maximum daily volume of treated water: 36,000 gallons	Treatment concentration (specify units): 10.3 ppm	Duration and frequency of treatment(s): 1 hour, once per day, 4 raceways	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Parasite - S		Generic Name: Formalin (37%. Formaldehyde)	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 0.90 gallons per raceway	Total quantity of formulated product used in past year (specify units): 5.4 gallons	
Date(s) of treatment: 04/17 (2 raceways), 04/18 (4 raceways)			Total number of treatments in past year: 2
Maximum daily volume of treated water: 36,000 gallons	Treatment concentration (specify units): 40.3 ppm	Duration and frequency of treatment(s): 1 hour per day, 2–4 raceways treated per day	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: Parasite-S		Generic Name: Formalin (37%. Formaldehyde)	
Reason for use: Trichodina			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 0.60 gallons	Total quantity of formulated product used in past year (specify units): 0.60 gallons	
Date(s) of treatment: 7/4			Total number of treatments in past year: 1
Maximum daily volume of treated water: 9,000 gallons	Treatment concentration (specify units): 26.9 ppm	Duration and frequency of treatment(s): 1 hr per day, 1 raceway	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Parasite-S		Generic Name: Formalin (37% Formaldehyde)	
Reason for use: Ichyophthirius multifiliis			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 0.90 gallons per raceway	Total quantity of formulated product used in past year (specify units): 9.0 gallons	
Date(s) of treatment: 09/05, 09/06, 09/07, 09/08			Total number of treatments in past year: 10
Maximum daily volume of treated water: 144,000 gallons	Treatment concentration (specify units): 10.1 ppm	Duration and frequency of treatment(s): 4 hrs per day, per raceway	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: Parasite-S		Generic Name: Formalin (37% Formaldehyde)	
Reason for use: Ichyophthirius multifiliis			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 3.6 gallons	Total quantity of formulated product used in past year (specify units): 7.2 gallons	
Date(s) of treatment: 09/09, 09/10			Total number of treatments in past year: 2
Maximum daily volume of treated water: 36,000 gallons	Treatment concentration (specify units): 40.3 ppm	Duration and frequency of treatment(s): 4 hrs, 1 treatment per day	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☒ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: parasite-S		Generic Name: Formalin (37% Formaldehyde)	
Reason for use: Inhibit fungal growth on steelhead kelts			
☒ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units): 1380mL per tank	Total quantity of formulated product used in past year (specify units): 130.5 gallons	
Date(s) of treatment: 01/02 → 11/17/2019			Total number of treatments in past year: 358
Maximum daily volume of treated water: 8400 gallons	Treatment concentration (specify units): 164 ppm	Duration and frequency of treatment(s): 1 hour treatments, as needed one to four tanks treated	
Method of application:	☐ Static Bath ☒ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☒ Ponds ☐ Off-line settling basin	☒ Other (describe): circular
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☒ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name:		Generic Name:	
Reason for use:			
☐ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment:	Total quantity of formulated product used in past year (specify units):	
Date(s) of treatment:			Total number of treatments in past year:
Maximum daily volume of treated water:	Treatment concentration (specify units):	Duration and frequency of treatment(s):	
Method of application:	☐ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments Salt		
Tank Volume	11,208 gallons	Liters
Desired Static Bath Treatment Concentration	1069 ppm	µg/L
Volume of Product Needed	100 lbs	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 21.5 ppm Active Ingredient: 21.5 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	10,677,600 gallons	Specify Units
Maximum % of Facility Discharge Treated	5.2%	% of Total Discharge

Flow-Through Treatments LHRH		
Tank Volume	18,000 gallons	Liters
Calculated Flow Rate	300 gpm	Liters/Minute
Duration of Treatment	12 hrs	Minutes
Desired Flow-Through Treatment Concentration of Product	0.0000006 ppm	µg/L
Amount of Product to Add Initially	0.5 mg	Liters Product
Amount of Product to Add During Treatment	0	mL/Minute
Total Volume of Product Needed	0.5 mg	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.0000258 ppb Active Ingredient: 0.0000258 ppb	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	10,212,480 gal	Specify Units
Maximum % of Facility Discharge Treated	50%	% of Total Discharge

Salt (Static Bath)

V of water discharged in 75 mins

$$\frac{7408\ gal}{min} \times 75\ mins = 555{,}604\ gal \times \frac{3.79\ L}{gal} = 2{,}105{,}740\ L$$

$$100\ lbs\ salt \times \frac{453.6\ g}{lb} \times \frac{1000\ mg}{g} = \frac{45{,}360{,}000\ mg}{2{,}105{,}740\ L} = 21.5\ ppm$$

$$\frac{2{,}105{,}740 \times 3.79}{10{,}677{,}600} \times 100 = 5.2\%$$

LHRH

V of water discharged in 12 hrs

$$\frac{7092\ gal}{min} \times 60\ min \times 12\ hrs = 5{,}106{,}240\ gal \times \frac{3.79\ L}{gal} = 19{,}352{,}649\ L$$

$$\frac{0.5\ mg}{19{,}352{,}649\ L} = 2.58 \times 10^{-8}\ ppm = 0.0000258\ ppb$$

$$\frac{5{,}106{,}240\ gal}{10{,}212{,}480\ gal} \times 100 = \frac{50}{}\%$$

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments Ovadine		
Tank Volume	113 L	Liters
Desired Static Bath Treatment Concentration	75 ppm	µg/L
Volume of Product Needed	0.84 L	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 2.84 ppm Active Ingredient: 0.284 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	8,150,400 gallons	Specify Units
Maximum % of Facility Discharge Treated	0.00030%	% of Total Discharge

Flow-Through Treatments Salt		
Tank Volume	11,208 gallons	Liters
Calculated Flow Rate	150 gpm	Liters/Minute
Duration of Treatment	8 hrs	Minutes
Desired Flow-Through Treatment Concentration of Product	83.2 ppm	µg/L
Amount of Product to Add Initially	50 lbs	Liters Product
Amount of Product to Add During Treatment	0	mL/Minute
Total Volume of Product Needed	50 lbs	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 83.1 ppm Active Ingredient: 83.1 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	12,952,800 gallons	Specify Units
Maximum % of Facility Discharge Treated	2.8%	% of Total Discharge

Ovadine

V of water discharged in 15 mins: $\frac{5660 \text{ gal}}{\text{min}} \times 15 \text{ mins} = 84{,}900 \text{ gal} \times \frac{3.59 \text{ L}}{\text{gal}} =$

304,791 L

$0.840 \text{ L ovadine} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1.03 \text{ g}}{\text{mL}} \times \frac{1000 \text{ mg}}{\text{g}} = 865{,}200 \text{ mg}$

$\frac{865{,}200 \text{ mg}}{304{,}791 \text{ L}} = 2.84 \text{ ppm} \times 0.1 = 0.284 \text{ ppm}$

$\frac{30\# \text{ gallons (2 gallons} \times 15 \text{ trays)}}{8{,}150{,}400 \text{ effluent}} * 100 = 0.00036\%$

Salt (FT)

$50 \text{ lbs salt} \times \frac{453.6 \text{ g}}{\text{lb}} \times \frac{1000 \text{ mg}}{\text{g}} = 22{,}680{,}000 \text{ mg}$

V of water discharged over 8 hrs: $\frac{150 \text{ gal}}{\text{min}} \times \frac{60 \text{ min}}{\text{hr}} \times 8 = 72{,}000 \text{ gal} \times \frac{3.79 \text{ L}}{\text{gal}} =$

272,880 L

$\frac{22{,}680{,}000 \text{ mg}}{272{,}880 \text{ L}} = 83.1 \text{ ppm}$

$72{,}000 \text{ gal treated} \times 5 \text{ raceways} = \frac{360{,}000}{12{,}952{,}800 \text{ total}} \times 100 = 2.8\%$

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
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- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments AQUI-S		
Tank Volume	75 L	Liters
Desired Static Bath Treatment Concentration	20 ppm	µg/L
Volume of Product Needed	1400 mg	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 18.7 ppm Active Ingredient: 1.87 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	12,228,480 gallons	Specify Units
Maximum % of Facility Discharge Treated	0.00032%	% of Total Discharge

Flow-Through Treatments	
Tank Volume	Liters
Calculated Flow Rate	Liters/Minute
Duration of Treatment	Minutes
Desired Flow-Through Treatment Concentration of Product	µg/L
Amount of Product to Add Initially	Liters Product
Amount of Product to Add During Treatment	mL/Minute
Total Volume of Product Needed	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: Active Ingredient: Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	Specify Units
Maximum % of Facility Discharge Treated	% of Total Discharge

AQUI-S

$$\left(75\ L \times \frac{1\ gal}{3.79\ L}\right) \times 2 \text{ treatments per day} = 39.6 \text{ gal treated}$$

$$\frac{39.6\ gal}{12{,}228{,}480 \text{ total effluent}} \times 100 = 0.00032\%$$

$$\frac{1400\ mg}{75\ L} = 18.67\ ppm \times 10\% \text{ active ingredient} = 1.87\ ppm$$

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments AQUA DES		
Tank Volume	18,000 gallons	Liters
Desired Static Bath Treatment Concentration	32 ppm	µg/L
Volume of Product Needed	55 gallons	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 118.85 ppm Active Ingredient: 118.85 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	11,550,240 gallons	Specify Units
Maximum % of Facility Discharge Treated	14.96%	% of Total Discharge

Flow-Through Treatments Formalin		
Tank Volume	229,366	Liters
Calculated Flow Rate	1136	Liters/Minute
Duration of Treatment	60	Minutes
Desired Flow-Through Treatment Concentration of Product	193 ppm	µg/L
Amount of Product to Add Initially	0.0038	Liters Product
Amount of Product to Add During Treatment	227	mL/Minute
Total Volume of Product Needed	13.63	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 6.92 ppm Active Ingredient: 2.56 ppm	Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	14,342,400 gallons	Specify Units
Maximum % of Facility Discharge Treated	4.29%	% of Total Discharge

Changes to the Facility or Operations

Describe any changes to the facility or operations since the last annual report.
None.

Signature and Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly evaluate and gather the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sara E Reese	Assistant Hatchery Manager
Printed name of person signing	Title
Sara Reese	01/08/2020
Applicant Signature	Date Signed

Submittal Information

Send the complete, signed information, along with any attachments, to the following address:

U.S. EPA Region 10, OWW-191

Washington Hatchery Annual Report

1200 Sixth Avenue, Suite 900

Seattle, WA 98101-3140

AQUADES

18,000 gallons % 300 gpm to flush = 60 mins to flush

$\frac{8,021 \text{ gal}}{\text{min}} \times 60 \text{ mins} =$ 481,260 gal

481,260 gal × 3.59 = 1,727,723

$55 \text{ gallons AQUADES (peracetic acid)} \times \frac{3.59 \text{ L}}{1 \text{ gal}} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1.04 \text{ g}}{\text{mL}} \times \frac{1000 \text{ mg}}{1 \text{ g}}$

$\frac{2,05,348,000 \text{ mg}}{1,727,723 \text{ L}} = 118.85 \text{ ppm}$

$\frac{1,727,723}{11,550,240} \times 100 = 14.96\%$

Formalin

$227 \text{ mL} \times \frac{1.09 \text{ g}}{\text{mL}} = 247.43 \text{ g} \times \frac{1000 \text{ mg}}{\text{g}} =$

$\frac{247,430 \text{ mg}}{9960 \text{ gallons} \times \frac{3.59 \text{ L}}{\text{gal}}} = 6.92 \text{ ppm}$

$= 35,756.4$

6.92 ppm × 0.37 = 2.56 ppm

[redacted]

$\frac{615600}{14,342,400} \times 100 = 4.29\%$